

1 **AMENDMENTS TO THE CLAIMS**

1-34 (Canceled).

- 1 35. (Currently Amended) A method of characterizing a large group of biological cells,
2 comprising:
- 3 a) separating the cells so that the cells of the large group are preponderantly separated from each
4 other;
- 5 b) characterizing each cell according to an aspect of the vibrational spectrum of each cell,
6 wherein the vibrational spectrum of each cell is analyzed for indications that the cell is
7 in a cell division stage, and;
- 8 c) statistically analyzing the characteristics of the [groups] cells.

- 9 36. (Original) The method of claim 35, wherein the results of the statistical analysis is the
10 percentage of the cells of the group which are in a cell division stage.

- 1 37. (Previously Amended) The method of claim 36, wherein the indication that a cell is in a cell
2 division stage is the presence of a signal indicating DNA in the vibrational spectrum .

- 1 38. (Original) The method of claim 37, wherein the separated cells are located according to the
2 fluorescence of the cells.

- 1 39. (previously added) The method of claim 35, wherein the vibrational spectrum of each cell is

- 1 the recording of an infrared absorption spectrum for each cell.
- 2 40. (previously added) The method of claim 39, wherein the results of the statistical analysis is
- 3 the percentage of the cells of the group which are in a cell division stage.
- 1 41. (previously added) The method of claim 40, wherein the indication that a cell is in a cell
- 2 division stage is the presence of a signal indicating DNA in the infrared absorption spectra.
- 1 42. (previously added) The method of claim 41, wherein the separated cells are located
- 2 according to the fluorescence of the cells.
- 1 43. (previously added) The method of claim 35, wherein the vibrational spectrum of each cell is
- 2 the recording of a Raman spectrum for each cell.
- 3 44. (previously added) The method of claim 43, wherein the results of the statistical analysis is
- 4 the percentage of the cells of the group which are in a cell division stage.
- 1 45. (previously added) The method of claim 44, wherein the indication that a cell is in a cell
- 2 division stage is the presence of a signal indicating DNA in the infrared absorption spectra.
- 1 46. (previously added) The method of claim 45, wherein the separated cells are located
- 2 according to the fluorescence of the cells.

1 47. (currently amended) A method, comprising:

2 locating a very large number of separated cells with a location means;

3 illuminating the cells with light;

4 recording light emitted from the cells; and

5 characterizing the vibrational spectrum of the light emitted from [the cells] each cell located by

6 the location means, wherein the vibrational spectrum is analyzed for indications that the

7 cell is in a cell division stage.

1 48. (previously added) The method of claim 47, wherein the vibrational spectrum

2 characterization means comprises a means for generating and for transmitting infrared

3 light through each cell.

1 49. (previously added) The method of claim 48, wherein the means for generating infrared

2 light comprises a first laser having a first defined infrared wavelength.

1 50. (previously added) The method of claim 49, wherein the first laser is pulsed when the

2 location means locates a first cell in a position to be characterized by the first laser.

1 51. (previously added) The method of claim 49, wherein the first defined wavelength

2 comprises a wavelength wherein DNA is highly absorbing.

1 52. (previously added) The method of claim 51, wherein a second laser having a second

2 infrared wavelength is pulsed to characterize the cell, wherein the second infrared

3 wavelength comprises a wavelength wherein RNA is highly absorbing.

1 53. (previously added) The method of claim 48, wherein the means for generating infrared
2 light comprises a third laser having a broad band infrared wavelength range.

3 54. (previously added) The method of claim 53, wherein the third laser is pulsed when the
4 location means locates a first cell in a position to be characterized by the laser.

1 55. (previously added) The method of claim 54, wherein the broad band infrared wavelength
2 range includes a wavelength wherein DNA is highly absorbing.

1 56. (previously added) The method of claim 55, wherein the broad band infrared wavelength
2 range includes a wavelength wherein RNA is highly absorbing.

1 57. (previously added) The method of claim 56, wherein the infrared absorption spectrum of
2 each cell is recorded.

1 58 (previously added) The method of claim 57, wherein the infrared absorption spectrum of
2 each cell is analyzed for indications that the cell is in a cell division stage.

1 59. (previously added) The method of claim 58, wherein the percentage of the cells in the cell
2 division stage is calculated.

1 60. (previously added) The method of claim 59, wherein the indication that a cell is in a cell
2 division stage is the presence of a signal indicating DNA in the infrared absorption
3 spectra.

1 61. (previously added) The method of claim 47, wherein the location means is a fluorescence
2 activated sorting method

1 62. (previously added) The method of claim 47, wherein the vibrational spectrum

1 characterization means comprises a means for illuminating the cells, and a means for
2 analyzing the Raman scattered light emitted from the cells.

1 63. (previously added) The method of claim 62, wherein the means for illuminating the cells
2 comprises a first laser having a first defined wavelength.

1 64. (previously added) The method of claim 63, wherein the first laser is pulsed when the
2 location means locates a first cell in a position to be illuminated by the first laser.

1 65. (previously added) The method of claim 64, wherein the Raman spectrum of each cell is
2 recorded.

1 66. (previously added) The method of claim 65, wherein the Raman spectrum of each cell is
2 analyzed for indications that the cell is in a cell division stage.

1 67. (previously added) The method of claim 66, wherein the indication that a cell is in a cell
2 division stage is the presence of a signal indicating DNA in the Raman spectra.